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M.A. Rahim

ON THE ISSUES OF INTERNATIONAL COMPARISON OF "PRISON POPULATION" AND "USE OF IMPRISONMENT"

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1. INTRODUCTION

Prison populations, at specific time points or as annual averages, are generally considered to be an important statistical series in the crime and justice area.

The Council of Europe has been publishing these statistics for European countries since 1983 in its Prison Information Bulletin[1]. In the U.S.A. such data are collected from the States and the Federal Prison System since the mid-1920's under the National Prisoner Statistics Program[8]. In Canada, the Canadian Centre for Justice Statistics has the responsibility for collecting and publishing these statistics as a component of its Corrections Program[9].

Prison population data have an important place in the crime and justice process of each country; however, controversy and misunderstanding may arise when these data are used to compare different countries. The data do not allow such conclusions as: country A has higher proportion of its population imprisoned than country B, and therefore country A makes more "use of imprisonment". (Hogarth: 1971; Waller et. al: 1974; Scanlon et. al: 1979.)

The use of prison population data to draw such inferences needs closer scrutiny. In this paper we will examine:

(i) whether any comparison of different countries in terms of prison population - whatever the purpose may be - is at all meaningful;

(ii) whether the prison population statistics, usually expressed as a proportion of the total general population, can serve as an indicator for describing "use of imprisonment"; and

(iii) what could be an alternative and methodologically more sound indicator for describing "the use of imprisonment".

In addition, we will indicate how future international comparative studies on the crime and justice process can be made relatively more meaningful by simultaneous consideration of the incidence of crime, conviction, and use of imprisonment.

2. INTERNATIONAL PRISON POPULATION STATISTICS

In this section we present international statistics on prison population; explain why comparisons of countries in terms of these statistics are not meaningful; and suggest possible improvements from a methodological point of view.

2.1 STATISTICS OF 21 COUNTRIES: Table 1 shows recent statistics on prison population for 21 countries.

TABLE 1

PRISON POPULATION(2): NUMBER AND RATE, BY COUNTRY - 1983

COUNTRY	TOTAL POPULATION		SENTENCED POPULATION		UNSENTENCED POPULATION	
	NUMBER	RATE(1)	NUMBER	RATE(1)	NUMBER	RATE(1)
Austria	8,387	110.0	6,315	82.8	2,072	27.2
Belgium	6,525	65.0	4,671	46.5	1,854	18.5
Cyprus	188	35.8	181	34.5	7	1.3
Denmark	3,120	60.0	2,281	43.4	839	16.1
France	39,086	70.1	19,387	34.8	19,699	35.3
Federal Republic of Germany	61,778	100.3	45,651	74.1	16,127	26.2
Greece	3,736	47.0	2,596	32.7	1,140	14.3
Ireland	1,466	42.1	1,334	38.3	132	3.8
Iceland	57	24.3	51	21.7	6	2.6
Italy	41,413	73.0	10,809	19.1	30,604	53.9
Luxembourg	245	67.0	167	45.7	78	21.3
Malta	97	30.0	61	18.9	36	11.1
Netherlands	4,000	28.0	2,400	16.8	1,600	11.2
Norway	1,941	47.0	1,396	33.8	545	13.2
Portugal	6,093	58.9	3,826	37.0	2,267	21.9
Spain	14,659	38.6	9,660	25.4	4,999	13.2
Sweden	4,422	43.0	3,586	34.9	836	8.1
Switzerland	4,000	62.0	2,688	41.7	1,312	20.8
United Kingdom	43,415	87.5	35,123	70.8	8,292	16.7
Canada	26,924	109.3	23,383	94.9	3,541	14.4
United States	438,830	187.1	419,820	179.0	19,010	8.1

Source: Prison Information Bulletin, Council of Europe. No. 2, Dec. 1983
Prison statistics: England and Wales, Home Office, No. 9027, Year 1982
Prisoners in 1983: Bureau of justice statistics, U.S. Department of of Justice, NCJ92949, year 1984
Adult Correctional Services in Canada: Statistics Canada, Catalogue No. 85-211, year 1982-83

(1) Rates are per 100,000 general population.

(2) The data refer to a count of prisoners during March, 1983, in Canada; December 1983 in the U.S.A.; and September 1, 1983, in other countries.

The rates shown in this table are calculated by the formula:

$$[2.1.1] \qquad R_1 = \frac{\text{(Number of detainees in prison on specified dates during 1983)}}{\text{Total general population}} \times 100{,}000$$

This rate R_1 tells us, on those dates, how many per 100,000 population in a country were in prison. An appropriate description of this rate is "the rate of incarcerated population" and is most often used to compare countries' use of imprisonment.

2.2 COMPARISON OF PRISON POPULATIONS The comparison of different countries in terms of the rate R_1 is not justified either on definitional or on methodological grounds.

There are considerable differences among countries with regard to the definitions of "prison" and "prisoner". In general terms a prison is thought to be a place "where some persons are deprived of liberty on the grounds that they are believed to have committed a criminal offence" (Waller et al. Criminal Law Quarterly, 1974). In Canada, the following are regarded as prisons: federal penitentiaries; provincial prisons; some remand or lock-up cells/jails, depending upon jurisdiction respnsibilities; and community correctional centres. In the United States only the federal and state prisons, but not the remand or lock-up cells/jails, are taken into account. In the United Kingdom "all prisons, jails, and junior detention centres" are regarded as prisons. Remand, local lock-up, training prisons, open and closed Borstals, senior and junior detention centres, and female institutions, are all included. In Holland, until very recently, criminals thought to be insane were sentenced to mental hospitals after they had been kept for a fixed period in a prison.

Thus, mental hospitals were also regarded as prisons (Waller, et al.1974). Further, there is no uniformity among countries on questions like the inclusion of juvenile institutions or special schools, residential treatment centres administered by a welfare agency, and police cells where a person spends only 24 to 48 hours.

The next question is who the "persons" are that should be counted as prisoners. Different countries follow different rules in the matter. For example, about one-third of the prisoners in Denmark, and one-half in Holland are in fact pre-trial detainees (Great Britain Expenditure Committee Report 1971). "In several European countries, periods of two or three years on pre-trial, or so-called preventive detention are quite common. .... Another factor is the number of persons in prison for civil debt and the non-payment of fines. It is not always clear whether these two categories are included and they can account for a large proportion of the prison population" (Waller et. al: 1974). Similarly there is some ambiguity about whether "person" is restricted to adults. Further, the U.S.A. and U.K. specify that immigration cases are included, while other countries do not.

In short, neither the "establishment" (i.e. prison) nor the "unit" (i.e. person) of count is uniformly defined in the Council of Europe bulletin of prison populations. In the absence of uniformity, any comparison of countries with respect to prison populations is problematic.

From the methodological point of view let us examine the data in Table 2 showing prison populations based on a count of prisoners at different time points. Any comparison based on such statistics is unstable in the sense that country A might have a larger prison population (or rate) than country B at a given time point. At another time point the situation may be reversed, even when the time points are not wide apart. It should further be noted that the count on a given day is subject to many factors including seasonality. It would be preferable to use the average daily count for a given year.

TABLE 2

PRISON POPULATION AND RATE OF DETENTION IN BELGIUM AND SWEDEN AT TWO TIME POINTS

COUNTRY	PRISON POPULATION		RATE OF DETENTION	
	ON FEB. 1, 83	ON SEPT. 1, 83	ON FEB. 1, 83	ON SEPT. 1, 83
Belgium	5,343	6,525	53.4	65.0
Sweden	5,461	4,422	65.0	43.0

Source: Prison Information Bulletin, Council of Europe No. 2, Dec. 1983

From Table 2, one can see that on Feb. 1, 1983, Belgium had a lower prison population and rate of detention than Sweden. Within a short span of time i.e. on Sept. 1, 83 the situation had reversed, Belgium having the higher prison population and rate of detention. It is not possible to conclude from these data that Belgium had a lower or higher prison population and rate than Sweden during all of 1983.

Further, there is no indication of whether the prison population data published in the Prison Information Bulletin of the Council of Europe are based on actual count or on-register count. This can make a marked difference. For example, the Canadian experience shows that "on average, approximately 15% (excluding Ontario and British Columbia) of all inmates who are on-register are temporarily not in custody" [9].

Finally, and most fundamental, is the bias inherent in the formula used for calculating the rate of detention R_1 [2.1.1]. The numerator and the denominator of R_1 are not commensurate because the number in the numerator comes from an adult population while the denominator shows total population. Therefore the value of R_1 will have a downward bias. In other words, a country with a high proportion of juvenile population will tend to show low value of R_1 even if its prison population is high.

2.3 ALTERNATIVE APPROACH: The formula [2.1.1] used in the Prison Information Bulletin of the Council of Europe, for deriving the rate of incarcerated population, can be made more meaningful by redefining it as below.

$$[2.3.1] \qquad R_2 = \frac{\text{(Average number of detainees in prison on a day during a year)}}{\text{Total population at risk}} \times 100{,}000$$

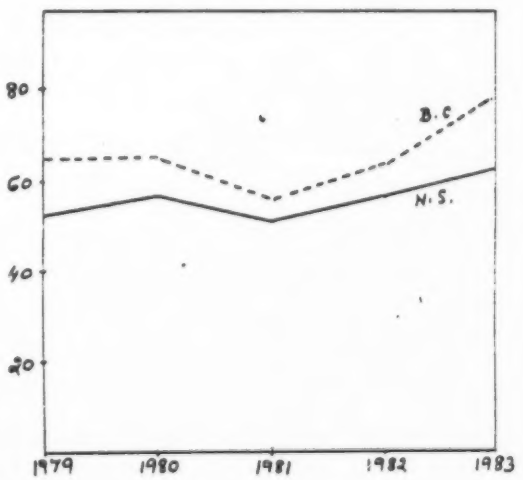
The population at risk should include only those individuals capable of committing an offence for which a sentence of imprisonment is possible. For example, it could be the adult population within certain age limits in a given country. Obviously, the definition of the population at risk would be somewhat subjective and might vary from country to country. Nevertheless, it is important to make the numerator and denominator commensurate, as in R_2, so that it becomes more meaningful and comparable.

The values of R_2 for a given year will allow a comparison of countries for the same year only. However, to be able to conclude that in one country the rate of incarcerated population is consistently higher than another, one would have to use time-series data over a number of years and compare the trends. For the purpose of illustration the time-series data and the corresponding graphs for two provinces of Canada are presented in Table 3.

TABLE 3

RATE OF PROVINCIAL PRISON POPULATION(1):
COMPARISON OF NOVA SCOTIA AND BRITISH COLUMBIA: 1978-79 TO 1982-83

PROVINCE/ YEAR	PRISON POPULATION (NO.)	ADULT POPULATION (000)	RATE (R_2)
Nova Scotia:			
1978-79	319	606.2	52.6
1979-80	351	616.2	57.0
1980-81	323	624.8	51.7
1981-82	361	632.9	57.0
1982-83	405	641.3	63.2
British Columbia:			
1978-79	1,216	1,867.4	65.1
1979-80	1,227	1,891.1	64.9
1980-81	1,119	1,991.0	56.2
1981-82	1,314	2,065.4	63.6
1982-83	1,661	2,114.2	78.6



SOURCE: Adult Correctional Services in Canada: Statistics Canada, Catalogue #85-211
(1) Actual count of sentenced population
R_2: Per 100,000 adult population.

From such data it is easy to determine the length of time for which the rate of incarcerated population has been consistently higher in one country than another. It is also possible to do more rigorous statistical analyses (such as regression analysis) to determine if, on an average, the growth rates of prison populations are significantly different among countries.

3. THE ISSUE OF "USE OF IMPRISONMENT"

We have so far discussed international statistics on the number and rate of incarcerated population, its limitation and use. In this section we point out that there is a distinction between prison population data and "use of imprisonment" as dispositional data. In some earlier studies [2, 11, 12] prison population data have been used to compare countries with regard to imprisonment as a sentencing disposition which, in our view, is incorrect.

3.1 COMPARISON OF INCARCERATIVE DISPOSITIONS: To be able to compare countries on the issue of "use of imprisonment" we define the following rate.

$$[3.1.1] \quad R_3 = \frac{\text{(Number of convictions with sentences of imprisonment during a year)}}{\text{(Total number of convictions during the same year)}} \times 100$$

In this definition the unit of count is a "conviction". However, in some countries data on total count of convictions, and the convictions with sentences of imprisonment, may not be available. In that case an alternative definition can be;

$$[3.1.2] \quad R_4 = \frac{\text{(Number of persons sentenced to prison during a given year)}}{\text{(Total number of persons convicted during the same year)}} \times 100$$

In this definition the unit of count is a "person convicted".

Both these rates can be termed as "rates of incarceration" and should be understood as quite distinct from the "rate of incarcerated population" (R_1 or R_2). It may also be noted that in these definitions the numerator and the denominator are commensurate; and such questions as "what is a prison" and "who is a prisoner" are not relevant. Consequently countries having relatively similar legal systems, definitions of offence categories, and dispositions can be compared in terms of either of these rates.

To illustrate the use of "rate of incarceration" for comparing different countries with regard to "use of imprisonment" we will apply the formula [3.1.2] to Canadian data from four different regions. The results are shown below in Table 4.

TABLE 4

INCARCERATION RATES (R4) FOR SELECTED OFFENCE TYPES: CANADA AND REGIONS (1973)

REGIONS(1)	ROBBERY	THEFT	BREAK & ENTER	ASSAULT	NARCOTIC CONTROL ACT	ALL FIVE CATEGORIES
PACIFIC:						
Number convicted	199	3,660	918	208	860	5,845
Number sentenced to incarceration	163	898	542	73	444	2,120
Rate of incarceration(%)	82	25	59	35	52	36
PRAIRIE:						
Number convicted	103	1,571	758	336	327	3,095
Number sentenced to incarceration	91	492	396	131	93	1,203
Rate of incarceration(%)	88	31	52	39	28	39
ONTARIO:						
Number convicted	493	9,921	3,252	748	842	15,256
Number sentenced to incarceration	438	1,805	1,664	323	306	4,536
Rate of incarceration(%)	89	18	51	43	36	30
ATLANTIC:						
Number convicted	62	1,437	615	120	93	2,327
Number sentenced to incarceration	56	347	383	50	64	900
Rate of incarceration(%)	90	24	62	42	69	39

SOURCE: Statistics of criminal and other offences. Statistics Canada Catalogue #85-201. Annual.

(1) Excludes Quebec, Alberta, Yukon, Northwest Territories.

From this table, for example, one can easily see that, for offences under Narcotic Control Act, the Atlantic Region has the highest rate of incarceration and the Prairie Region has the lowest. From the point of view of "use of imprisonment" it is now meaningful to compare and rank the regions as below with regard to violations of the Narcotic Control Act where the numbers 4, 3, 2, 1 stand for the highest to the smallest rates of incarceration, in that order.

	Altantic		Pacific		Ontario		Prairie
Ranks:	4	>	3	>	2	>	1

A simple table of ranks derived from Table 4, and presented in Table 5 below enables easier comparisons of the regions under each category of offence.

TABLE 5

RANKS OF REGIONS WITH REGARD TO USE OF INCARCERATIVE SENTENCES

REGION	ROBBERY	THEFT	BREAK & ENTER	ASSAULT	NARCOTIC CONTROL ACT
Pacific	1	3	3	1	3
Prairie	2	4	2	2	1
Ontario	3	1	1	4	2
Atlantic	4	2	4	3	4

A similar table of ranks for different countries is all that is needed for international comparisons on the issue of "use of imprisonment".

3.2 EFFECT OF CRIME, CHARGES, AND CONVICTION ON INCARCERATION: In any given country the rate of incarceration is just one element of information or one parameter of the entire crime and justice process. It tells us what happened at one particular stage, namely, what proportion of convictions received sentences of imprisonment. For comparative studies and a complete understanding of this piece of information, one should examine it in conjuction with other parameters such as rate of reported crimes, rate of charges being laid, and rate of convictions. To amplify this point let us consider the following hypothetical data.

	Country A	Country B
No. of persons charged with murder	100	100
No. of persons convicted	80	40
No. receiving sentercs of imprisonment	20	10
Rate of conviction	80÷100= 0.8	40÷100=0.4
Rate of incarceration	20÷80 = 0.25	10÷40 =0.25

The rate of incarceration calculated relative to convictions, tells us that the two countries are alike inspite of the fact that out of 100 persons charged with murder, 20 wound up in jail in country A, as compared to only 10 in country B. The reason for such an apparent

anomaly lies in the fact that the rate of conviction (0.8) in country A is much higher than the rate of conviction (0.4) in country B. In other words, a much higher number of convictions in country A (i.e. 80 in country A) has led to the equalisation of the rates of incarceration in the two countries. Hence, the rate of incarceration seen along with the rate of conviction, makes the comparison of the two countries more meaningful.

This type of study, where every stage in the criminal justice process is taken into consideration, has a much broader context. Ideally, for such a study one would like to have offender rather than transaction based data. For example, one would have to follow-up the total number of incidents of crime during a given year and find out -over time - what proportion of these reported crimes have resulted in charges; what proportion of charges resulted in convictions; and what proportion of convictions received sentences of imprisonment.

Although outside the scope of this paper, this aspect is emphasized to promote future comparative studies in this direction, preferably under the auspices of international organizations like the Council of Europe.

CONCLUSION

An examination of the past literature reveals that considerable controversy and misunderstanding exist in the area of international comparative studies on the issues of "prison population" and "use of imprisonment".

In this paper we have shown that these issues are quite distinct in nature. We have explained the type of limitations inherent in comparing countries with regard to prison populations, as well as the fallacy involved in using prison population statistics to draw inferences on the "use of imprisonment". Separate measures have been proposed for comparing prison populations and the use of imprisonment. European and Canadian data have been used to illustrate the points.

We have further suggested a direction of future research for a better understanding of the imprisonment aspects of crime and justice processes.

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